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ABSTRACT

The Schools and Hospital Program, funded through the National Energy Conservation Policy Act, is not an effective use of federal monies when compared to other Department of Energy (DOE) conservation programs. It is among the highest in cost, yet among the lowest in yielding energy savings. This report identifies changes which could increase overall energy savings without increasing program funding. It also discusses improvements needed in DOE's management of the program. Schools and hospitals should be able to reduce their energy use by up to 30 percent. (Author/WB)

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BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

ED202732

The Energy Conservation Program For Schools And Hospitals Can Be More Effective

Through effective conservation actions, schools and hospitals--major consumers of energy--can reduce their energy use by up to 30 percent. The National Energy Conservation Policy Act authorized a nearly $1 billion grant program to assist these institutions in reducing energy use.

The Schools and Hospitals Program is not an effective use of Federal funds when compared to other Department of Energy conservation programs. It is among the highest in cost, yet among the lowest in yielding energy savings.

This report identifies changes which could increase overall energy savings without increasing program funding. It also identifies improvements needed in DOE's management of the program.

SE 035 228

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D.C. 20548

B-202225

To the President of the Senate and the
Speaker of the House of Representatives

This report examines the energy conservation potential for schools and hospitals and assesses the impact of the Energy Conservation Program for Schools and Hospitals in furthering energy conservation actions in these institutions. The report contains our evaluation of the effectiveness of the program and makes recommendations for its improvement. In addition, it identifies ways in which the Department of Energy can improve its management of the program.

We undertook this review because the program was authorized a large amount of funding--nearly $1 billion--and assurance is needed that these funds are being spent as effectively as possible.

Copies of this report are being sent to the Director, Office of Management and Budget; the Secretary of Energy; and the chairmen of energy-related congressional committees.

Milton J. Socolar

Acting Comptroller General
of the United States

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

THE ENERGY CONSERVATION PROGRAM FOR SCHOOLS AND HOSPITALS CAN BE MORE EFFECTIVE

D I G E S T

Schools and hospitals, major consumers of energy, operate about 309,000 buildings and account for approximately 3 percent of national energy use. Through effective conservation efforts, schools and hospitals can reduce their energy consumption by as much as 30 percent.

As part of the President's 1977 National Energy Plan, a grant program was established to assist schools and hospitals in reducing energy use. Funding of almost $1 billion was authorized for a 3-year program operated by the Department of Energy (DOE).

GAO found that the Schools and Hospitals Program is not an effective use of Federal funds when compared to other DOE conservation programs. It is among the highest in cost, yet among the lowest in yielding energy savings (see p. 5). However, it could be more effective by making changes which could increase overall energy savings without increasing program funding. These changes would

--save greater amounts of energy by placing emphasis on energy audits,

--provide energy audits to more schools and hospitals, and

--match the assistance provided by the program more closely to the needs of schools and hospitals.

EMPHASIS NEEDED ON ENERGY AUDITS

The focus of the Schools and Hospitals Program needs to be directed toward providing more energy audits. The program funds two types of activities:

--Phase I: energy audits to identify maintenance and operational changes which have no significant cost and can reduce energy use by 15 to 30 percent.

--Phase II: technical assistance grants to identify energy conservation measures which are substantially more capital-intensive, and grants to help pay for the design, purchase and installation of these measures which can yield up to 15 percent additional savings.

When the cost-effectiveness of the two phases is compared, a serious imbalance is evident. Phase I, expected to produce half or more of the total savings under the program, receives $25 million of Federal funding, while phase II is authorized $875 million. Even if the savings levels of the two phases were assumed to be equal, phase II funding is 35 times that of phase I.

Since all the funding provided for phase I energy audits has been used, the remaining funds are going into the less cost-effective phase II measures. (See p. 8.)

ENERGY AUDITS NEEDED FOR MORE SCHOOLS AND HOSPITALS

The Schools and Hospitals Program can reach considerably more institutions than DOE expects to participate in the program. Thus, the overall impact of the program can be increased. At the time the legislation to create the program was being considered, it was believed that about 90 percent of eligible facilities would receive energy audits. However, the audit phase has not reached as many institutions as originally expected. (See p. 10.)

As of June 30, 1980, about 52,000 phase I audits of schools and hospitals had been made--only about 17 percent of eligible buildings. Thus, a substantial number of buildings still have not been audited.

ASSISTANCE SHOULD BE MORE CLOSELY MATCHED TO NEEDS

The Schools and Hospitals Program could be more effective if its assistance were more closely matched to the needs of the institutions it serves. For instance, it provides a large financial incentive which may be more than is needed. (See p. 12.)

Assistance for schools and hospitals was included in the National Energy Plan because the administration believed schools and hospitals were not responsive to traditional market forces with respect to rising energy prices.

GAO found that these institutions are able and willing to respond to rising prices and many of them began to react to rising energy costs before the Schools and Hospitals Program was created, motivated solely by the energy savings they could achieve.

PROGRAM MANAGEMENT CAN BE IMPROVED

Despite authorized funding approaching $1 billion, DOE has neither assessed program performance nor given the program firm organizational support. Consequently, DOE's ability to effectively manage the program has been severely limited. In order to assess program performance, DOE needs to have information which would enable it to identify needed program changes, redirection, or changes in emphasis. (See p. 18.)

CONCLUSIONS

The Schools and Hospitals Program, as currently structured, is not an effective use of Federal funds when compared to other current DOE conservation programs. The effectiveness of the program can be improved by making changes to its approach.

Further, the lack of program performance data severely limits DOE's ability to evaluate the results of the Schools and Hospitals Program and to identify needed program changes, redirection, or changes in emphasis. DOE's effective management of the program has also been hampered by the lack of a firm staff and organization.

RECOMMENDATION TO THE CONGRESS

The Congress should adjust the program to provide funding for additional energy audits so that they are available to all institutions which want and could benefit from them. If this is done, overall energy savings could increase without increasing program funding.

RECOMMENDATIONS TO THE SECRETARY OF ENERGY

The Secretary of Energy should:

--As part of the budget process, provide information to the Congress on how many institutions could benefit from energy audits, and how much funding will be required to provide them.

Tear Sheet

--Provide the Congress the results of DOE's ongoing study of alternatives to the 50-percent cost sharing arrangement for phase II grants.

--Assess the Schools and Hospitals Program on a continuous basis.

--Promptly fill key program positions on a permanent basis.

AGENCY COMMENTS

DOE agreed with all of GAO's recommendations. DOE expressed concern, however, that it was too early for GAO to review program performance, since the first grants for energy conservation measures were awarded less than a year ago and no hard energy savings data are available yet. (See p. 15.) This report deals with the approach of the program, and ways to make it more effective, not its performance to date. In addition, DOE presently has data on program coverage and potential savings which could have been used to assess the program. (See p. 19.)

Concerning the cost comparison of the Schools and Hospitals Program to other programs, DOE believed that costs beyond those to the Federal Government should be included--such as the institutional share of matching grants, or, in programs where the only Federal cost involves information dissemination, the cost of equipment or other measures to the private sector. DOE also suggested that other factors such as reduced tax revenues due to tax credits and the benefits of increased employment be considered. Further, DOE stated that reduced energy consumption has other benefits for the Federal Government such as reduced Medicare and Medicaid payments resulting from lower reimbursements for energy costs.

GAO did not perform a cost-benefit study of the program. GAO reviewed the effectiveness of the program from the standpoint of the energy savings achieved for the funds being spent. Carrying out GAO's recommendations would both increase energy savings and reduce costs for all parties involved. If DOE is correct in its belief that reduced energy consumption can also benefit the Federal Government by reducing costs in other programs, then that is even more reason for DOE to increase the effectiveness of the program. (See p. 16.)

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ABBREVIATIONS

AASA	American Association of School Administrators
DOE	Department of Energy
GAO	General Accounting Office
NECPA	National Energy Conservation Policy Act

CHAPTER 1

INTRODUCTION

The National Energy Conservation Policy Act (NECPA) (Public Law 95-619, Nov. 9, 1978) established a 50-percent matching grant program to assist schools and hospitals in reducing energy use. The program was proposed in the President's 1977 National Energy Plan to assist these institutions because they generally do not pay taxes, and are therefore unable to take advantage of tax credits being provided to the general public and industry in the Plan for implementing energy conservation measures. Funding of almost $1 billion was authorized for a 3-year program. The Department of Energy (DOE) is responsible for operating the program.

ENERGY CONSERVATION IN SCHOOLS AND HOSPITALS

Schools and hospitals, which operate about 309,000 buildings, account for approximately 3 percent of national energy use. Through effective energy conservation efforts, these institutions can reduce their energy consumption by as much as 30 percent.

In the early 1970s, rising energy costs led some schools and hospitals to seek ways to reduce their energy use. Some of the measures taken were low cost such as replacing high wattage light bulbs with bulbs using less energy and making sure all lights and equipment were turned off when not in use. Other measures were more expensive such as installing sophisticated computers for controlling air handling throughout buildings and increasing boiler efficiency.

Energy conservation gives schools an opportunity to reduce a significant portion of their variable costs. About 85 percent of school budgets are fixed--primarily committed to salaries for teachers, administrators, and service personnel. Of the remaining costs, energy represents about one third, so that savings in this area are continually sought.

Of all residential/commercial structures, hospitals use more energy per square foot. More than 90 percent of the existing 7,200 hospitals in the United States were built before 1974 when energy efficiency was not a primary design consideration. As a result, hospital administrators, who are continually under pressure to contain overall costs, have an opportunity to do so through effective energy conservation actions.

HOW THE PROGRAM OPERATES

The Schools and Hospitals Program operates in two phases. In phase I, DOE provides funding to the States for conducting statewide surveys (preliminary energy audits) to determine

the energy conservation characteristics of eligible buildings. This results in a State plan. More detailed energy audits are then performed for individual buildings to determine whether there are changes that can be made to maintenance and operating procedures which will reduce energy use. During phase II, data on costs, savings, and payback periods for various conservation measures in buildings are developed, and DOE provides funding to help pay for the design, purchase, and installation of specific energy conservation measures identified. Before funding for phase II measures can be provided, measures identified by the phase I audits must have been undertaken.

States apply directly to DOE for funding for preliminary energy audits and energy audits. For technical assistance and energy conservation measures, schools and hospitals submit their grant applications to State energy offices which review and rank them according to potential energy savings and forward them to DOE regional offices for review and final approval. Federal funding of 50 percent must be matched with non-Federal money by the institutions.

Although the initial legislation for the Schools and Hospitals Program anticipated its startup in fiscal year 1978, extended deliberations delayed the enactment of NECPA until November 1978. The program began operating in April 1979, after DOE had published proposed regulations, obtained comments and issued final regulations. Because of the delayed enactment of NECPA, DOE expects the currently authorized program to extend through fiscal year 1983.

FUNDING

NECPA authorized funding of $900 million for the Schools and Hospitals Program which included $25 million for phase I and $875 million for phase II as indicated in the following chart.

	Authorization (millions)		
Fiscal year	Phase I	Phase II	Total
1978	$20	$180	$200
1979	5	295	300
1980	-	400	400
	$25	$875	$900

Amounts appropriated were lower than the authorized levels--$100.1 million for fiscal 1979, $143.75 million for 1980, and $181.25 million for 1981--a total of $425.1 million.

As of September 30, 1980, DOE had spent about $241 million--$22.7 for phase I and $218.5 for phase II. Appendix I summarizes these expenditures by State.

OBJECTIVES, SCOPE, AND METHODOLOGY

Our overall objective was to evaluate the approach of the Schools and Hospitals Program to determine whether alternative approaches might help to increase energy savings and/or reduce program costs. We did not conduct a performance evaluation of the program. We considered the effectiveness with which Federal conservation funds are being spent. As part of our work, we compared the Federal expenditures for the program and the energy savings anticipated by DOE to Federal expenditures and anticipated savings for other DOE conservation programs.

Our overall objective required us to consider

--why the program was created, and the objectives the Congress intended it to meet;

--DOE's implementation of the program, and its plans for the future;

--the potential for energy conservation in schools and hospitals, the actions taken to achieve this potential, and the need, if any, for incentives to promote greater levels of action; and

--any changes needed to improve the effectiveness of the program.

We examined the rationale for establishing the program in order to validate the perceived need and approach taken to meet this need. We also reviewed testimony and Government and private studies of energy conservation in schools and hospitals. (See app. II.) Much of the data we gathered came from relatively broad scoped studies or actual experience of schools and hospitals we contacted. We believe this represents a reasonable base against which to assess the Schools and Hospitals Program.

In order to determine the status of the program, we met with program officials at DOE headquarters and regional DOE officials in Boston, Atlanta, San Francisco, and Chicago; State energy officials in Maine, Massachusetts, Rhode Island, Georgia, California, and Ohio; and school and hospital administrators in Rhode Island, Massachusetts, Georgia, and Ohio. This field work was performed in mid-1980. The schools and hospitals we visited represented a mixture of small-, medium-, and large-size institutions.

At the institutions we visited, we obtained data on their current energy use and costs, energy conservation measures taken, and energy saved. In our judgment this data, along with the studies we reviewed, gave us a valid basis to reach a conclusion as to the extent and type of conservation opportunities available to schools and hospitals, and what motivates them to act. Our conclusions, along with the results of the oral interviews and reviews of documents, were combined in what we believe is an accurate narrative description of the situation.

CHAPTER 2

THE SCHOOLS AND HOSPITALS PROGRAM CAN BE MORE EFFECTIVE

The Schools and Hospitals Program, as currently structured, is not an effective use of Federal funds when compared to other current DOE conservation programs. The program, however, could be made more effective by making changes which would reduce overall program costs while increasing overall energy savings. These changes would

--save greater amounts of energy by placing emphasis on energy audits,

--provide energy audits to more schools and hospitals, and

--match the assistance provided by the program more closely to the needs of schools and hospitals.

THE SCHOOLS AND HOSPITALS PROGRAM DOES NOT COMPARE FAVORABLY WITH OTHER CONSERVATION PROGRAMS

The Schools and Hospitals Program does not compare well to other DOE conservation programs. The program is among the highest in cost, yet among the lowest in yielding energy savings.

When the amount of funding and expected results of the Schools and Hospitals Program are compared to other DOE conservation programs, there is a significant disparity. DOE's projection of energy savings from the Schools and Hospitals Program ranks it about 10th (see app. III)--contributing only about 1 percent of the total savings for all programs projected to 1985--yet it is currently the second highest funded program. 1/ The Schools and Hospitals Program alone exceeds the total funding for all DOE programs addressing each of three major energy-consuming sectors--Transportation, Industrial, and Residential/Commercial (see app. IV).

A very sharp comparison can be made between the Schools and Hospitals Program which is estimated to require a Federal expenditure of about $9,300 2/ to produce recurring savings of

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1/Based on 1979 and 1980 appropriations.

2/Program officials estimate the Schools and Hospitals Program will save 39,000 barrels of oil equivalent per year per $1 million spent. Based on full authorized funding of $900 million, this represents a savings rate of about 96,000 barrels a day, and a Federal investment of about $9,300 per barrel to attain that level of savings.

a barrel of oil a day and the Voluntary Truck and Bus Fuel Economy Program 1/ which has produced savings at a Federal expenditure of about $32 per barrel a day.

We recognize that while both these programs are designed to conserve energy, their approach is different. The Voluntary Truck Program is essentially an outreach program, disseminating information and relying on the financial incentive which fuel economy offers to stimulate industry action. The Schools and Hospitals Program, on the other hand, provides funds directly to promote conservation actions.

Nevertheless, when the costs to achieve savings of a barrel of oil a day by these programs are compared, there is a substantial difference. Through fiscal year 1980, DOE and the Department of Transportation have jointly provided about $3.6 million to the Voluntary Truck Program, with resultant savings in excess of 110,000 barrels a day. Based on DOE's estimate and assuming full authorized funding, the Schools and Hospitals Program will receive $900 million and produce savings of about 96,000 barrels a day.

DOE has been concerned about the relative costs and priority of its conservation programs and has developed criteria for their establishment and implementation. 2/ The principal criterion established for Government action to influence energy conservation is whether the Nation can obtain greater benefits if the Government takes one action rather than another or takes no action at all. With respect to how much Government activity is justified, DOE established these rules

--lowest-cost options should be exhausted first,

--a single measure of benefits should be applied to all programs, and

--programs which reduce the Nation's vulnerability to oil supply disruptions should be directly compared with the costs of other options for achieving the same objective.

We believe such an approach represents a sound basis for selecting from among options for Government action.

1/The Voluntary Truck Program is a joint DOE/Department of Transportation program designed to promote energy conservation in the trucking industry.

2/Draft Policy, Programming, and Fiscal Guidance, FY 1982-1986, Jan. 30, 1980. The word "draft" appears in the title as DOE believed policies and programs may change. The document is, however, intended to be the rationale and guide for major DOE energy policies and programs.

The importance of selecting cost-effective options for Federal programs is underscored by the concern in recent years to produce balanced Federal budgets and improve the overall efficiency of Government operations. The Congress demonstrated this concern with regard to energy conservation programs and specifically to the Schools and Hospitals Program, as shown below.

--The House Committee on Interstate and Foreign Commerce 1/ stated its intent that priority be given to energy conservation programs which will result in the greatest energy savings for the amount of money invested.

--Some members of the same House committee expressed a concern that conservation funds, particularly grant monies, be spent efficiently. They also expressed a desire to restrain less effective programs and not unnecessarily defer more effective (particularly cost-effective) programs.

--The Senate Committee on Appropriations, in acting on the 1981 budget, reduced funding for the Schools and Hospitals Program in favor of higher priority energy programs.

THE SCHOOLS AND HOSPITALS PROGRAM CAN BE MORE EFFECTIVE

The approach of the Schools and Hospitals Program should be changed to make the program more effective by

--placing emphasis on energy audits,

--providing energy audits to more schools and hospitals, and

--matching the assistance provided by the program to the needs of schools and hospitals.

Emphasis needed on energy audits

The focus of the Schools and Hospitals Program needs to be directed toward the most cost-effective energy conservation measures. The program funds two types of activities:

--Phase I--energy audits to identify maintenance and operational changes which have no significant cost and can reduce energy use by 15 to 30 percent.

1/Now the House Committee on Energy and Commerce.

--Phase II--technical assistance grants to identify energy conservation measures which are substantially more capital-intensive and grants to help pay for the design, purchase, and installation of these measures which can yield up to 15 percent additional savings.

The phase I activities are more cost-effective. When the program was created, the Congress intended that most schools and hospitals receive the benefits of the energy audits and of the maintenance and operational changes the audits identified. However, since all the funding provided for energy audits has been used, the remaining funds are going into less cost-effective phase II measures.

Maintenance and operational changes involve little or no capital investment and include measures such as reduced heating and higher cooling temperature settings, better control of these settings, reduced illumination levels, more frequent servicing of equipment to maintain high levels of efficiency, and a variety of other options which vary according to geographic area, building type and the type of major mechanical systems in the building. On the other hand, energy conservation measures are more expensive and involve capital expenditures for such things as insulating buildings; replacing boilers, furnaces, and burners; and replacing or modifying major building systems or components.

When the Schools and Hospitals Program was proposed, the previous administration recognized that phase I measures were more cost-effective than phase II. Moreover, phase I was expected to yield as much or more energy savings than phase II. When the Deputy Administrator of the Federal Energy Administration 1/ testified during hearings on the proposed program, he stated that saving energy in existing buildings is a two-step process which involves implementing

--relatively low-cost operational and maintenance actions which can save on the order of 15 to 30 percent of the fuel use in the buildings and

--costlier energy-conserving capital improvements which are estimated to save an additional 15 percent of fuel consumption.

1/The Department of Energy was created after the National Energy Plan was proposed, so the proposal was initially introduced by the Federal Energy Administration--a predecessor agency to DOE.

At this same time, the House Committee on Interstate and Foreign Commerce also recognized the benefits of the phase I measures. The committee expected that the phase I audits would identify modifications in maintenance and operational procedures which would reduce energy consumption by at least 15 percent, and possibly more, at no significant additional expense to the institutions. The report of the House Committee on Interstate and Foreign Commerce, which accompanied the enacting legislation, states:

> "In light of the enormous potential for savings through effective implementation of energy conserving maintenance and operating procedures * * * and the fact that these savings can be achieved at little or no cost to the institutions involved, the committee intends that the Administrator 1/ shall take considerable pains to assure that these procedures are effective, are implemented and are continued."

In addition, NECPA recognizes the role of energy audits in identifying maintenance and operational procedures "which are designed to reduce energy consumption" and "which require no significant expenditure of funds."

Moreover, DOE recognizes the importance of pursuing cost-effective measures. DOE's 1979 Annual Report to the Congress on the Schools and Hospitals Program states that in order to carry out the intent of NECPA, it will vigorously pursue several goals, one of which is to:

> "Enhance participation in all program phases, particularly the energy audit phase, to maximize energy savings at the lowest cost through both operations and maintenance adjustments and installation of energy conservation measures."

Although the legislative history indicates the Congress intended that the program place major emphasis on maintenance and operation procedures, and DOE itself recognizes the importance of pursuing cost-effective measures, the program is not taking such a direction. Instead, only the much more costly energy conservation measures are being funded because funds for energy audits have been exhausted.

We compiled data on the actual results of maintenance and operational changes at selected locations. We found reported savings in the general range of from 10 to 30 percent. This supports the original expectation for phase I (see p. 8).

1/Administrator of the Federal Energy Administration. The Secretary of Energy now has this responsibility.

When the cost-effectiveness of these phase I actions is compared to the cost-effectiveness of phase II, a serious imbalance is evident. Phase I, expected to produce half or more of the total savings under the program, receives $25 million of Federal funding, while phase II is authorized $875 million. Even if the savings levels of the two phases were assumed to be equal, phase II funding is 35 times that of phase I.

We discussed the contrast between phase I activities and phase II activities with regional, State, and institutional officials. The consensus was that phase I offers an opportunity which should be fully exploited. Some officials noted that as much as half the savings available under the program could result from low-cost or no-cost measures. One State program manager noted that he believed every institution should be reached with an energy audit under phase I because little cost is involved, and phase II involves substantial cost. The program director in another State said that phase I should be pursued first because it is more efficient.

We noted that at least three States had established energy conservation programs for buildings which focused on the shortest payback measures first. For example, prior to the creation of the Schools and Hospitals Program, Maine instituted a statewide program for schools which prioritized all projects on the basis of their estimated payback periods. Such an approach has the effect of yielding energy conservation savings at the lowest cost per unit saved.

The benefits of maintenance and operations changes are illustrated by a study conducted of Illinois schools. An evaluation of the cost-effectiveness of energy audits at 3,300 schools found that savings of 20 percent were possible as the result of energy audits which focused on maintenance and operations procedures. Costs of about $1.6 million 1/ yielded estimated savings of $6.9 million.

Energy audits needed for more schools and hospitals

The Schools and Hospitals Program can reach considerably more institutions than DOE expects to participate in the program. In doing so, particularly if the more cost-effective measures are emphasized, the overall impact of the program can be increased.

At the time the legislation to create the program was being considered, the House Committee on Interstate and Foreign

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1/Included in this amount is $900,000 representing the cost of time spent in training. The net cost of the measures undertaken was about $700,000.

Commerce believed that about 90 percent of eligible schools and health care facilities would receive energy audits to identify maintenance and operational changes to conserve energy. However, the energy audit phase has not reached as many institutions as originally expected.

DOE estimated 1/ that there are 200,000 school and hospital buildings in the United States and projects that during fiscal years 1980-84, the Schools and Hospitals Program will

--fund more than 58,000 energy audits,

--award more than 45,500 technical assistance grants, and

--sponsor more than 14,700 energy conservation measures.

The estimated 58,000 energy audits falls far short of the original expectation for the program which was for 90 percent participation or about 180,000 of the 200,000 buildings estimated at that time. Since then, reports by the States to DOE place the number of school and hospital buildings at about 309,000 as of June 30, 1980.

As of June 30, 1980, about 52,000 phase I audits of school and hospital buildings had been made--only about 17 percent of the most recent estimate of the total number of schools and hospitals. This means that a substantial number of schools and hospitals still have not been audited.

Energy audits can be provided under the program through the end of fiscal year 1981, with funds already provided to the States. Beyond that time, however, no funds are available. In addition, we recognize that some institutions may have received energy audits outside the program through utilities or have undertaken them on their own. Nonetheless, we are concerned by the very low coverage for phase I of the program.

The 17 percent coverage for phase I represents a small portion of the coverage which was expected when the program was created. Although the phase I funds already provided to the States but not yet used will reach more institutions, funding during the remainder of the program will focus on the less cost-effective technical assistance and energy conservation measure grants (see pp. 7 to 10).

1/Energy Conservation, Program Summary Document, FY 1981 Assistant Secretary for Conservation and Solar Energy, DOE, Feb. 1980.

Given that (1) phase I actions produce much more cost-effective savings and (2) there appear to be many institutions which could still benefit from energy audits under phase I, we believe there is a strong need to further pursue energy audits.

Assistance should be more closely matched to needs

The Schools and Hospitals Program could be made more effective if its assistance were more closely matched to the needs of the institutions it serves. The program provides a large financial incentive which may be more than is needed.

The Federal Government has a leadership role in increasing energy conservation. The Government can carry out this role in a variety of ways such as from simply providing information which will help energy users recognize the benefits of various conservation actions to providing financial assistance through tax credits or direct grants which will help pay for the measures. The incentive the Schools and Hospitals Program provides--50 percent funding for energy conservation measures--appears to be in excess of the need that exists.

The proper role or response of the Federal Government should vary according to the need that exists. We have developed the chart below to illustrate, for energy conservation, selected institutional situations that might occur and what could be an expected Federal response.

Institutional situation	Federal response
Lacks awareness of the potential savings of energy and funds through conservation actions	Provide information on extent of savings available
Is aware of potential, but lacks detailed information	Provide detailed information and/or an energy audit
Has identified measures to be taken and has funds available for relatively inexpensive (very short payback) measures	No action required
Lacks funding for relatively inexpensive measures which have paybacks in the 1- to 5-year range	Provide: a. loan guarantee b. low interest loan (which the recipient would pay back out of future energy savings)

Lacks funding for more expensive measures with relatively long paybacks (up to 15 years)	Provide grant to assist with the costs. The extent of the grant assistance would depend on the degree of need.

The chart shows that the degree of assistance needed by each institution can vary from a need for basic information to a need for fairly extensive financial assistance. There is likewise a large degree of latitude in the appropriate Federal role to respond to that need.

The inclusion of the Schools and Hospitals Program in the National Energy Plan was justified on the basis that these institutions

--pay no taxes and therefore could not avail themselves of tax credits which were being provided for the general public and industry to encourage energy conservation and

--rely largely on current operating revenues (schools on tax monies and hospitals on "user charges") and are therefore generally unable to undertake projects extending beyond their current budget period.

In short, the administration believed schools and hospitals simply were not responsive to traditional market forces with respect to rising energy prices.

Our work shows that schools and hospitals are able and willing to respond to rising energy prices. Many institutions began to react to rising energy costs before the program was created, motivated solely by the energy savings they could achieve. Measures beyond simple low- or no-cost ones were taken. The State of Maine, for instance, conducted energy audits of all schools in the State and provided 90 percent funding for conservation actions. Florida State University reduced energy use by 30 percent by replacing individual chiller units in 25 lab buildings with a central system--at a cost of $6 million. In a report by a national association of school officials which summarized the programs implemented by its members on their own to save energy, it was noted that "the primary incentive was economy."

The fact that many institutions have acted on their own to save energy suggests that the present Federal response to the needs of schools and hospitals may be in excess of what is needed. Energy and cost savings are still sufficient in many cases to promote more conservation actions by schools and hospitals, without extensive Federal assistance. This point is perhaps best demonstrated by one grantee which informed us that the Schools and Hospitals Program has done

little more than pay 50 percent for energy conservation measures the institution had already planned to implement.

In this connection, we noted that in a review of funding levels for DOE's programs for fiscal years 1982-86, the Secretary of Energy suggested that the Under Secretary review the 50-percent cost sharing arrangement of the program because of his concern with overall DOE budget levels. We agree that this review of the program is in order, but believe that it should consider the broader question of the type and extent of assistance needed to promote appropriate levels of conservation activity by schools and hospitals. In its comments on a draft of this report, DOE stated that it was continuing to study alternatives to the present grant mechanism, and anticipates reporting on the study within a year.

CONCLUSIONS

Schools and hospitals are major consumers of energy, and a substantial potential exists for them to reduce their energy consumption and costs through a variety of energy conservation actions. Some of these actions involve only changes in maintenance and operation procedures--involving little or no cost, but yielding energy savings in the range of 15 to 30 percent. Other measures, requiring significantly more capital investment can yield additional savings of about 15 percent.

Many conservation opportunities are available to schools and hospitals and there is a valid role for the Federal Government to play in helping to achieve them. However, we question the effectiveness, cost, and relative priority of the program created to assist these institutions.

The Schools and Hospitals Program, as currently structured, is not an effective use of Federal funds when compared to other current DOE energy conservation programs. The effectiveness of the program can be improved by making changes to its approach which would save greater amounts of energy, assist more institutions, and more closely match the assistance provided by the program to the needs of schools and hospitals.

The Schools and Hospitals Program is completing its focus on energy audits and is beginning to focus on specific higher cost measures, usually involving retrofits or replacements of equipment or systems. This is because funding for the energy audits has been exhausted. While energy audits provide information for many institutions, the energy conservation measure grants provide funding for a relatively small number of institutions. Many institutions still could benefit from energy audits, and the program should focus its attention on them.

Before moving heavily into phase II, the more cost-effective maintenance and operations measures must be implemented as fully as possible. Such an approach is consistent with the original concept of the program, as well as the more recently stated congressional objectives of (1) efficiently using funds for conservation programs by restraining less effective programs and (2) giving priority to programs that will result in the greatest energy savings for the funds invested. It is also consistent with DOE's criteria for establishing and implementing energy conservation programs.

RECOMMENDATIONS

Since funding for energy audits has been exhausted, and many institutions could still benefit from the more cost-effective phase of the program, we recommend that the Congress adjust the program to provide funding for additional energy audits so that they are available to all institutions which want and could benefit from them. If this is done, overall energy savings could increase without increasing program funding.

In order to assist the Congress, we recommend that the Secretary of Energy, as part of the budget process, provide information on (1) how many institutions could benefit from energy audits and (2) how much funding will be required to provide them. In addition, the Secretary should provide the Congress the results of DOE's ongoing study of alternatives to the 50-percent cost sharing arrangement for phase II grants.

AGENCY COMMENTS

We provided a draft of this report to DOE. DOE concurred with our recommendations, agreeing that additional energy audit funds could be effectively utilized, and stated that it will provide information in that regard as part of the budget process. While agreeing with our recommendations to make the Schools and Hospitals Program more effective, DOE raised several concerns relative to the matters discussed in this chapter. These concerns and our views are discussed below.

DOE expressed concern that it is too early for us to conduct a review of program performance, since the first grants for energy conservation measures were awarded less than a year ago. This report deals with the approach of the program and ways to make it more effective, not its performance to date. We agree that evaluation of performance must follow actual operating experience. This is an activity that DOE must be prepared to perform, as discussed in chapter 3.

Concerning how much funding would be required to provide additional energy audits, DOE pointed out that this is more

difficult than simply subtracting the number of audits performed from the total number of eligible buildings because some institutions will choose not to participate, and others will receive energy audits outside the program. We agree. In fact, this report recognizes that there are institutions which have performed their own energy audits or obtained them through utilities.

Concerning the cost comparison of the Schools and Hospitals Program to other programs, DOE believed that costs beyond those to the Federal Government should be included--such as the institutional share of matching grants, or in programs where the only Federal cost involves information dissemination, the cost of equipment or other measures to the private sector. DOE also suggested that other factors such as reduced tax revenues due to tax credits and the benefits of increased employment be considered. Further, DOE stated that reduced energy consumption has other benefits for the Federal Government such as reduced Medicare and Medicaid payments resulting from lower reimbursements for energy costs.

We did not perform a cost-benefit study of the program. We reviewed the effectiveness of the program from the standpoint of the energy savings achieved for the funds being spent. Carrying out our recommendations would both increase energy savings and reduce costs for all parties involved. If DOE is correct in its belief that reduced energy consumption can also benefit the Federal Government by reducing costs in other programs, then that is even more reason for DOE to increase the effectiveness of the program.

DOE stated that our position that energy audits are the most effective use of funds is contradicted by appendix III, which shows the Local Government Buildings Program, comprised entirely of energy audits, to be the least effective conservation program. Appendix III shows the Local Government Buildings Program last because it has the smallest aggregate savings, not because it is least effective. This is because it is a relatively small program. In fact, DOE's own estimates show this program to be more than twice as effective as the Schools and Hospitals Program--producing one-sixth the savings at only one-fourteenth the cost (based on authorized funding). Applying DOE's rationale, this appears to be a case for the effectiveness of energy audits.

With respect to the forces which motivate schools to take conservation actions, DOE stated that after schools implement maintenance and operations changes, they have responded to rising energy costs by reducing the number of teachers, deferring maintenance, etc.,--in the absence of energy conservation measure grants under phase II of the program. We recognize that this may be true in some cases. Our report does not in any way suggest the termination of phase II of the program.

DOE noted that hospitals, which are able to pass through energy costs, are more interested in expending capital on revenue producing equipment. This appears to conflict with DOE's belief that hospitals would assume 50 percent of the cost of energy conservation measures (see p. 28). Moreover, it is not consistent with our work which shows that some hospitals have made capital investments in energy conservation equipment without any financial assistance.

DOE also offered a number of technical and clarifying suggestions. These are discussed in appendix V.

CHAPTER 3

PROGRAM MANAGEMENT CAN BE IMPROVED

Despite authorized funding approaching $1 billion for the Schools and Hospitals Program, DOE has neither assessed program performance nor has it given the program firm organizational support. Consequently, DOE's ability to effectively manage the program has been severely limited.

The Schools and Hospitals Program was created over 2 years ago, and about $241 million has been spent through the end of fiscal year 1980--yet DOE has not developed data with which to evaluate the program. Fiscal year 1980 was nearly over before DOE even knew how many energy audits had been provided under phase I.

In order to assess program performance, DOE needs to have information which would enable it to identify needed program changes, redirection, or changes in emphasis. Such information would include

--how many institutions have been reached, and how many remain which could benefit from the program;

--the energy conservation potential that exists;

--the expected savings from individual conservation actions; and

--actual savings achieved.

Moreover, the legislation creating the program calls for an annual report which is required to contain, among other things, a detailed report on actions taken and an estimate of the energy savings achieved. Neither the fiscal year 1979 nor the fiscal 1980 report contained data which would be useful in assessing program performance. Without such data, DOE has no basis on which to evaluate the program, or to determine how this program compares to other conservation opportunities, in accordance with its own criteria for ranking various conservation opportunities (see p. 6). And, without evaluative data, the Congress has no basis on which to make decisions concerning future funding for the program.

The only information DOE has on program performance is data submitted by the States on the number of eligible and participating buildings in the phase I preliminary energy audits and energy audits. Both States and grantees participating in the program are required to report performance data, including savings, to DOE's regional offices. However, during

our review DOE had not compiled this data into any useful form. Thus, while data is reported to the regional offices, it remains there, unused. At the end of our review, a DOE official informed us that a contract has been awarded to use this data for program evaluation.

In this connection, officials in one State program office we visited specifically called to our attention the lack of feedback from DOE. These officials stated that information on program performance in their State and others would allow them to determine what approaches are being used, how much energy is being saved, and how the program could be more effective. They noted that while they are required to report various information to DOE, no information comes back to them.

The lack of program performance data presents a serious management problem. This is a program where timely availability and use of evaluative data could have had a substantial impact--especially in recognizing and taking appropriate action with regard to the issues we identified in chapter 2.

In addition to the lack of program assessment, DOE's effective management of the program has been hampered by the lack of a firm staff and organization. A program of this magnitude needs strong organizational support, yet it has not received it. This is a problem which has affected DOE's conservation programs in general, and one on which we reported previously. 1/

A July 1980 reorganization placed the Schools and Hospitals Program in the Office of Institutional Conservation Programs, under the Deputy Assistant Secretary for State and Local Assistance Programs, in the office of the Assistant Secretary for Conservation and Solar Energy. Previously it had been in the Institutional Buildings Grant Division. The net effect of this reorganization was that the program was raised to the office level from the division level.

Frequent changes have occurred in top management of the program. When the program was created in November 1978, an acting division director headed it. He served until early 1980 when a permanent director was named. That individual served until August 1980 when the position became vacant due to her resignation. Adding to this, key positions below that of program director are also filled on an "acting" basis.

1/Letter report to the Secretary of Energy on the organization, management, and activities of the office of DOE's Assistant Secretary for Conservation and Solar Applications, EMD-79-64, May 18, 1979.

These organizational issues have had a negative impact on the program in that they have broken continuity of management and have failed to present a viable point of contact for DOE's regional offices.

CONCLUSIONS

The lack of program performance data severely limits DOE's ability to evaluate the results of the Schools and Hospitals Program. In addition, DOE's effective management of the program has been hampered by the lack of a firm staff and organization. Continuous monitoring and evaluation of programs is essential to their efficient and effective operation, but this function cannot be satisfactorily performed without adequate data. Management must be able to evaluate program activity as it occurs in order to identify needed program changes, redirection, or changes in emphasis.

DOE needs to establish and use a system to assess the performance of the Schools and Hospitals Program. Had such a system been established early in the life of the program, DOE might have been in a position to identify and deal with the issues discussed in chapter 2 of this report. Instead, DOE's role, rather that being one of active participatory management, has been essentially one of disbursing funds.

RECOMMENDATIONS

We recommend that the Secretary of Energy assess the Schools and Hospitals Program on a continuous basis. This would enable DOE to determine program effectiveness, and to identify needed changes, redirection or emphasis, and assure that the program is producing energy savings commensurate with the amount of funds being spent. In addition, to provide continuity to program management, we recommend that the Secretary promptly fill key program positions on a permanent basis.

AGENCY COMMENTS

DOE agreed with the need to assess the program on a continuous basis and to fill key program positions on a permanent basis.

DOE stated that, however, while it is too early in the life of the program to have hard energy savings data, it does have an evaluation plan which will soon be in full implementation. We believe that a system to evaluate the program is much needed. Our report points out that data is being reported to DOE which it is not using. This data would have enabled DOE to assess the potential of the program and helped it to identify the type of issues we have raised in this report. Had DOE used this data, it could have brought the need for more energy audits to the

attention of the Congress and enhanced the effectiveness of the program.

In addition, although DOE agreed with the need for continuous program assessment, it believed it had made formal efforts to evaluate the program. DOE stated that it had obtained comments and suggestions on the program when it solicited public comments on proposed program regulation changes, and that these were carefully considered in the formulation of the regulations. While this process is helpful in revising program guidelines, in our view, it is not a substitute for program evaluation.

Concerning the comment by State program officals that DOE has not provided any feedback on program performance (see p. 19) DOE noted that all program data made available to it is gathered by, and passes through, State offices. While this may be the case, such data does not have the benefit of DOE's analysis. In addition, since the data only pertains to the individual State, it does not help officials in one State learn of the experiences in other States.

APPENDIX I

SCHOOLS AND HOSPITALS ENERGY CONSERVATION GRANT PROGRAM
EXPENDITURES AS OF SEPTEMBER 30, 1980

State	Preliminary energy audits/energy audits (phase I) Amount	Technical assistance/energy conservation measures (phase II) Number of grants	Technical assistance/energy conservation measures (phase II) Amount
Alabama	$ 407,401	92	$ 3,211,591
Alaska	248,980	36	1,378,845
Arizona	298,604	49	1,689,697
Arkansas	288,314	78	2,351,149
California	729,163	196	9,891,581
Colorado	358,519	85	2,714,566
Connecticut	391,313	65	3,809,847
Delaware	175,626	46	1,276,489
District of Columbia	152,401	20	1,062,494
Florida	780,562	101	6,189,659
Georgia	510,076	105	4,116,013
Hawaii	166,889	33	1,209,931
Idaho	217,645	74	1,512,099
Illinois	1,048,378	327	12,315,680
Indiana	567,261	123	5,687,522
Iowa	386,896	273	4,119,484
Kansas	323,688	178	3,128,484
Kentucky	402,365	68	2,449,458
Louisiana	416,408	2	144,423
Maine	249,673	54	2,219,199
Maryland	204,000	225	4,679,046
Massachusetts	608,484	132	6,705,461
Michigan	882,310	309	11,357,706
Minnesota	496,324	345	6,335,628
Mississippi	301,211	65	1,881,355
Missouri	520,720	419	5,130,891
Montana	228,619	54	1,179,806
Nebraska	277,291	181	2,371,149
Nevada (note a)	-	-	-
New Hampshire	224,111	4	1,477,995
New Jersey	726,104	280	8,331,485
New Mexico	221,800	69	1,243,547
New York	1,592,907	562	19,661,431

a/Nevada is not currently participating in the program.

APPENDIX I

State	Preliminary energy audits/energy audits (phase I) Amount	Technical assistance/energy conservation measures (phase II) Number of grants	Technical assistance/energy conservation measures (phase II) Amount
North Carolina	$ 554,523	148	$ 4,833,428
North Dakota	239,539	48	1,682,973
Ohio	998,861	354	11,645,975
Oklahoma	346,922	139	2,992,922
Oregon	310,893	161	2,707,810
Pennsylvania	1,091,613	209	11,444,463
Rhode Island	211,511	25	1,501,079
South Carolina	340,151	57	2,533,246
South Dakota	222,531	84	1,541,947
Tennessee	459,633	91	4,379,183
Texas	1,116,030	476	8,914,062
Utah	247,786	37	1,583,762
Vermont	201,116	79	1,451,749
Virginia	107,966	130	4,969,219
Washington	420,815	201	3,946,889
West Virginia	25,521	50	1,264,984
Wisconsin	531,816	339	6,382,056
Wyoming	194,998	15	392,935
American Samoa	124,272	22	714,656
Guam	53,353	4	23,532
Puerto Rico	353,100	35	2,211,829
Virgin Islands	130,158	27	562,821
Total	$22,687,151	7,381	$218,515,231

APPENDIX II

GOVERNMENT AND PRIVATE STUDIES OF ENERGY CONSERVATION IN SCHOOLS AND HOSPITALS

1. Cost Containment in Hospitals through Energy Conservation: Case Histories of Energy Conservation Based on a National Survey of Select Hospitals, U.S. Department of Health, Education, and Welfare, Health Resources Administration, September 1979.

2. Energy Audit Workbook for Schools, U. S. Department of Energy, September 1978.

3. Public Schools Energy Conservation Measures (a series of 10 reports), American Association of School Administrators (AASA) for the Federal Energy Administration, January 1977.

4. AASA Energy Use Study, Office of Governmental Relations, AASA, July 1980 and August 1979.

5. Field-Proven Programs to Conserve Energy in Schools, Association of School Business Officials of the United States and Canada, 1980.

6. Saving Schoolhouse Energy: Final Report, Lawrence Berkeley Laboratory, University of California, June 1979.

7. Saving Schoolhouse Energy: A Summary of Findings, Office of Governmental Relations, AASA, March 1980.

8. Schoolhouse Energy Efficiency Demonstration, Tenneco Inc., 1979.

9. Total School Energy Management Program, U.S. Department of Energy, Office of Consumer Affairs, March 1980.

10. Total Energy Management for Hospitals, U.S. Department of Health, Education, and Welfare, Public Health Service, April 1978.

11. Measurement of Cost Effectiveness: Energy Audits in Illinois Schools, Contract Research Corporation, August 1980.

APPENDIX III

CONSERVATION PROGRAMS RANKED BY PROJECTED 1985 ENERGY SAVINGS

Program	Projected 1985 savings (Quads) (note a)
Energy Management Partnership (note b)	b/ 5.80
All Residential Programs	2.40
All Commercial Programs	1.10
Industrial Waste Heat Recovery and Utilization	.63
Industrial Process Efficiency (including agriculture and food production)	.52
Transportation System Utilization (including non-highway)	.50
Energy Extension Service	.29
Industrial Cogeneration	.23
Industrial Alternative Fuels and Feedstocks	.12
Schools and Hospitals	.12
Automotive Technology (including alternative fuels)	.04
Weatherization	.03
Local Government Buildings	.02

a/A Quad is a quadrillion British thermal units--equivalent to 180 million barrels of oil annually.

b/Includes programs under Energy Policy and Conservation Act and Energy Production and Conservation Act. According to DOE, accurate savings projections depend on development of specific State plans.

Source: Energy Conservation, Program Summary Document, FY 1981 Assistant Secretary for Conservation and Solar Energy, DOE, Feb. 1980.

APPENDIX IV

CONSERVATION PROGRAM FUNDING

SUBPROGRAM/PROGRAM ELEMENT	BUDGET AUTHORITY (DOLLARS IN THOUSANDS)[1]	
	APPROPRIATION FY 1979	APPROPRIATION FY 1980
BUILDINGS AND COMMUNITY SYSTEMS (CS)		
Building Systems	18,500	18,100
Residential Conservation Service	0	4,600
Community Systems	19,700	16,800
Urban Waste	8,500	13,000
Small Business	500	700
Technology and Consumer Products	20,350	29,600[2]
Appliance Standards	4,950	6,000
Federal Energy Management Program	500	400[3]
Analysis and Technology Transfer	2,800	5,400
Emergency Building Temperature Restrictions Program	0	3,675
Program Direction	3,533	5,137
Total Buildings and Community Systems	79,333	103,412
INDUSTRIAL ENERGY CONSERVATION (CS)		
Waste Energy Reduction	15,240	16,450
Industrial Process Efficiency	14,400	20,675
Industrial Cogeneration	5,000	11,250
Implementation and Deployment	3,160	9,800
Program Direction	2,193	2,067
Total Industrial Energy Conservation	39,993	60,242
TRANSPORTATION		
Vehicle Propulsion RD&D	47,800	60,500
Electric and Hybrid Vehicle RD&D	37,500	41,000
Transportation Systems Utilization	6,100	6,700
Alternative Fuels Utilization	5,800	5,300
Program Direction	1,949	2,923
Total Transportation	99,149	116,423
STATE AND LOCAL (CS)		
Schools and Hospitals Grant Program	100,100	143,750
Other Local Government Buildings Grant Program	7,300	17,700
Energy Management Partnership Act[4]	0	0
Energy Policy and Conservation Grant Program[4]	47,800	37,800
Energy Conservation and Production Grant Program[4]	10,000	10,000
Energy Extension Service Program[4]	15,000	25,000
Emergency Energy Conservation Program[4]	0	0[5]
Weatherization Assistance Program	198,950	198,950
Program Direction	2,980	7,340
Total State and Local	382,130	440,540
MULTI-SECTOR (CS)		
Appropriate Technology	8,000	12,000
Invention Program	2,000	4,200
Energy Conversion Technology	0	0
Personnel Resources	243	635
Total Multi-Sector	10,243	16,835
ENERGY INFORMATION CAMPAIGN	0	0
ENERGY IMPACT ASSISTANCE	20,000	50,000
TOTAL	630,848	787,452

1. Includes operating expenses, capital equipment and construction*.
2. Includes $9,000,000 for 40 kW fuel cell demonstration.
3. A supplemental request for $2,300,000 has been approved by OMB and will be forthcoming.
4. Will be consolidated under the Energy Management Partnership Act in FY 1981.
5. FY 1980 supplemental request is $14,072,000.

Source: Energy Conservation, Program Summary Document, FY 1981 Assistant Secretary for Conservation and Solar Energy, DOE, Feb. 1980.

Department of Energy
Washington, D.C. 20585

FEB 10 1981

J. Dexter Peach
Energy and Mineral Division
United States General Accounting Office
Washington, D. C. 20548

Dear Mr. Peach:

The Department of Energy (DOE) appreciates the opportunity to review and comment on the GAO draft report entitled "The Schools and Hospitals Energy Conservation Grant Program Can Be More Cost-Effective."

The draft report accurately reflects that DOE has expended, to the limit authorized by law, energy audit funds, and DOE agrees that additional energy audit funds could be effectively utilized by all eligible building sectors. The draft report also accurately reflects that a large number of institutions have undertaken energy audits and technical assistance analyses on their own. Many of these were, however, undertaken to fulfill the eligibility requirements for grants for energy conservation measures and to take advantage of a provision of the Schools and Hospitals Program regulations which allows such expenditures to be credited toward the institution's match for a grant under these programs.

DOE believes that GAO's opinion regarding the cost-effectiveness of the programs is in error. The cost-effectiveness of any program cannot be assessed without assessing the full cost of the program to all parties and the savings which can reasonably be expected from the program. The Institutional Conservation Programs (ICP) savings estimates consider only the savings achieved by the minimum number of institutions which would receive a grant under the programs based on the average grant size. In the GAO comparison, the full cost of the ICP programs is considered, whereas, for other programs only the cost of the information dissemination is considered, but not the cost to the recipient of that information to implement the conservation activity. Additionally, many of the programs to which the ICP is compared assume that the information will have 100 percent market penetration and that all clients will take all appropriate actions when estimating savings. Also, The GAO report does not assess the direct savings to the Federal government. For example, the American Hospital Association estimated that, in 1978, the Federal government reimbursed hospital

[See GAO note 1, p. 32.]

APPENDIX V

energy costs in the amount of $1.05 billion through Medicare and Medicaid payments. Estimated energy savings data available from energy audit (EA) and technical assistance (TA) reports under the Schools and Hospitals Program and American Hospital Association and Blue Cross/Blue Shield Studies indicate that an average hospital can expect to save in excess of 20 percent of its energy bill by implementing the operation and maintenance procedures recommended in the EA and TA and the energy conservation measures recommended in the TA. If 100 percent market penetration was assumed in the hospital sector, the direct savings to the Federal government would be $210 million annually in terms of 1978 dollars.

The draft report also neglects the side benefits of this voluntary program, such as job creation in the hard-pressed construction industry, the removal of institutional barriers to energy conservation and the stimulation of the development and production of energy saving devices and systems.

DOE believes that this program review was performed too early to adequately assess the effectiveness of programs as large in scope as the Schools and Hospitals Program. The first TA/ECM grants were awarded less than one year ago in March 1980 and, allowing for bidding, contract award and implementation time, it is not anticipated that adequate energy savings data will be available for several months.

While it is still too early to have sufficient hard energy savings data to evaluate this program, DOE does have an evaluation plan which will soon be in full implementation. Further, DOE is attempting to gather program data in a responsible manner, consistent with OMB policy, by balancing the need for information relative to the burden placed on grantees to provide such information.

DOE issued, in the April 21, 1980 Federal Register, a Notice of Public Inquiry which solicited comments and suggestions for changes to the program regulations for improved program performance and administration. It should be noted that this was just one year from the date of initial program implementaiton. The comments received as a result of this notice were carefully considered in the formulation of the revised regulations published as the Notice of Proposed Rulemaking in the December 29, 1980 Federal Register. In addition to these formal examples of DOE's efforts to evaluate this ongoing program, countless meetings with a variety of groups affected by this program have been initiated and/or attended by DOE program staff to hear the opinions of those persons involved in all aspects of the program, from institution officials to State energy officials. While unspecified State program officials may fail to understand that it may be some time before any field manager can get usable feedback from a national evaluation, it should be pointed out that all program data is gathered and maintained at the State level and data available to DOE first passes through the State energy offices.

The draft report states that EA's are the most effective use of grant funds. This appears to be contradictory to GAO's own conclusion that the Local Governments Program was the least effective conservation program. The only difference between the two programs was the lack of ECM funds for the Local Government Program. Further, information gained by DOE in response to the April 21, 1980 Notice of Public Inquiry and in meetings held with appropriate national associations indicated that the reason for low participation by local governments and public care institutions, a program whose entire focus was energy studies, was the lack of ECM funding.

DOE agrees with the recommendation to the Secretary of Energy that Congress be provided with information on how many additional institutions could benefit from energy audits and how much additional funding would be required to provide these audits. However, this is more difficult to arrive at than simply considering the total number of eligible buildings and the number that have received energy audits under the program to date. Since the program is voluntary, many institutions may not want to undertake energy audits. Additionally, many institutions have completed energy audits on their own and will not require financial assistance for this activity.

DOE agrees with the recommendation that the Schools and Hospitals Program be assessed on a continuous basis. As stated above, the evaluation plan for this program will soon be in full implementation and will provide for assessment of both the Schools and Hospitals Program and the Local Governments and Public Care Institutions Program.

DOE also agrees with the GAO recommendation to promptly fill key program positions on a permanent basis and will endeavor to do so within current constraints.

The following comments address specific portions of the draft report:

1. Page 1, para 4 and 5 - It is true that energy accounts for a significant portion of school and hospital budgets. However, after operation and maintenance (O&M) changes, schools have responded to rising energy costs by reducing the number of teachers, deferring other maintenance which has an adverse effect on energy consumption, etc. Schools' reluctance to undertake energy conservation activities is further substantiated by the fact that while the average payback of the projects funded under these programs is approximately 3 years, schools have not undertaken these projects in the absence of ECM grants. Hospitals, on the other hand, are able to pass through energy costs and therefore would prefer to expend capital on revenue producing equipment in lieu of energy conservation devices.

[See GAO note 2, p. 32.]

2. Page 2, para 2 - NECPA was enacted November 1978, not 1977, and final program guidelines were issued six months later in April 1979.

[See GAO note 3, p. 32.]

page 3, para. 1

3. Page 2, para 3 and / - It should be made clear that of the $425.1 million, $181.25 million was appropriated for grant program Cycle III which will not close until the end of this fiscal year, at which time DOE anticipates that all of the funds thus far appropriated will have been obligated.

[See GAO note 3, p. 32.]

4. Page 3, para. 3 - The data cited here should be made part of the draft report.

[See GAO note 3, p. 32.]

5. Page 5, note 2 - It should be made clear that the $9,300 is a one-time expenditure which will result in a one barrel per day saving throughout the life of that system. If the assumption is made that the average useful life of the energy conservation measures installed is ten years (a conservative assumption), the cost per barrel saved is $2.55 (1 bbl x 365 days x 10 years = 3,650 bbls and $9,300 -- 3,650 = $2.55).

(GAO response: While we have not verified DOE's estimate of useful life, its methodology appears correct. It should be noted, however, that over the useful life of other actions, such as those cited in this report, the cost of saving a barrel of oil can be even less than $2.55, using DOE's methodology.)

6. Page 6, para 2 - The methodology GAO used to verify the 110,000 barrel/day savings should be included.

[See GAO note 3, p. 32.]

7. Page 7, middle of page - Precisely matching the type of assistance provided to institutional needs is, of course, preferable. However, such a program could involve considerable administrative cost since it could necessitate a program of grants, loans, loan guarantees, etc. Such delivery options were investigated and the grant mechanism was determined by the Congress to be the one which matched the needs of the majority of the client sector. DOE is, however, continuing to study the various delivery mechanism options and anticipates that a report on the most appropriate mechanism(s) will be available within a year.

[See GAO note 2, p. 32.]

8. Page 8, top of page - The draft report appears to criticize DOE for obligating all of the EA funds, however, this is what Congress intended be done.

[See GAO note 3, p.32.]

9. Page 9, quotation - It should be noted that while O&M procedures are easily implemented, they are easily abandoned. Continued adherence to energy saving O&M procedures is a requirement for receiving an ECM grant.

[See GAO note 3, p. 32.]

10. Page 9, para 4 - The draft report appears to criticize DOE for adherence to the legislation which specified the level of funding for ECM's.

[See GAO note 3, p.32.]

11. Page 10, para 4 - It should be noted that in the Illinois study, the evaluation was done by the same people that conducted the energy auditor training.

[See GAO note 3, p. 32.]

12. Page 10, para 6 - Congress intended that nearly all of the eligible institutions receive Preliminary energy audits, not energy audits as cited in the draft report. To date, in excess of 120,000 institutions have received preliminary energy audits and 58,000 have received energy audits.

(GAO response: A review of the legislative history of the program makes it clear that what are now known as "energy audits" were initially not distinguished from preliminary energy audits and both were referred to as "preliminary energy audits.")

13. Page 12, para 3 - The statement that the 50 percent grant appears to be an excessive incentive is contradicted by the statement elsewhere in the report which lauds Maine's 90 percent program.

(GAO response: There is no contradiction. Our point is that the Maine program needed no Federal assistance; the State provided 90 percent, and the institutions provided the other 10 percent.)

14. Page 13, para 4 - DOE should be advised as to which institutions received grants for measures which they already planned to do. This would violate a legislative provision which stipulates that grant funds must be used to supplement and not supplant State, local or other funds. Any grantee which accepts grant funds which would take the place of already designated non-Federal funds would be in violation of the law and program regulations.

(GAO response: The institution referred to did not use Federal funds to supplant its own--it applied for funding for a project it planned to undertake in the future.)

Sincerely,

P. Marshall Ryan
Controller

GAO note 1: Page numbers and paragraph references throughout this appendix have been changed to correspond to the final report.

GAO note 2: This comment is discussed in the body of this report.

GAO note 3: These comments deal with wording in the draft report, and revisions have been made in the final report where appropriate.

(003482)